ugust-27-12 10:25:43 AM

Item ID: D407-667-205

Accept

N900040100

Setup Start

Revision ID: Item Name:

Crosstube Aft

Required Date: 31/05/2012 Req'd Qty: 1.00

Start Date:

14/05/2012 Start Qty: 1.00

Date:

Cust Item ID:

Customer:

Reference:

Approvals:

Date: 17/08/24 Tooling:

Process Plan: MLJ

Date:

WMUJ 12-11-13

Sequence ID/ Work Center ID

Operation Description Set Up/ **Run Hours**

SPC (Y/N):

Tool ID

Tool # Plan

Qty

Code

Accept Reject Oty

Reject Number

Insp. Stamp

Draw Nbr D407-667-245

Rev F/DEO

Revision Nbr

100

DC

DOCUMENT CONTROL Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D407-667-205 CHG007

*11**0***

Packaging

Packaging

Pick Kit

Packaging

Memo

0.00

0.00

0.00

CNC Bend 1

BENDING MACHINE - CROSSTUBES

-0.00 ⊶ ;;....

ČNC Delta 100 Bender

1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and

											DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFORM	MANCE / UPDATE		OA Glassida	D.4	•
											QA Closed:	Date	
Work Ord	er,					DISPOSITION			AGAIN	ST DE	PARTMENT	PROCESS	•
Work ord	٠,٠.				 	Rework	1		Skid-tube Crosstu	be		Water Jet	Engineering
Part I	No.					Scrap	1		Machining Small F	<u> </u>	Pro	d. Eng. Coor.	Quality
	•					Use-as-is	1		noforming Finishi		l	e/Packaging	Other
NCR I	No.					Work Order Update]		Large Fab Compos	ite		Supplier	
Root					Descri	ption of work order update	i	nitial	Action		Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator	Ш										,		
Material			!						,				
Setup					<u> </u>								
Other								*,					
Process								•					
Supplier											1	5	
Training	Ш				ļ		1						
Unapproved			1				<u>L</u>				<u> </u>		
							AUL	T CATE	GORY				
Landi	<u> </u>				_	General	_	,		_	1		-
!		Bending			<u> </u>	Bend		Grain		<u> </u>	Ovalized	L	Pressure/Forced
	Щ	Centre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re	L	Over/Under	tolerance	Temperature/Cure
# T.	Ш	Cracks				Broken/Damaged	\perp	1 '	on Incomplete		Part Incorre	-	Weld
	Ιİ	Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/Unclear		Part Lost/Mi	ssing	Wrong Stock Pulled

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Part Moved

Positioned Wrong

Power Loss/Surge

Other

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Cuffs

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Memo

QC

Quality Control

August-27-12 10:25:43 AM Accept Item ID: D407-667-205 *N900040100* Setup Start **Revision ID:** Crosstube Aft Item Name: L Start Date: 14/05/2012 Start Qty: 1.00 **Cust Item ID:** Req'd Qty: 1.00 **Required Date:** 31/05/2012 **Customer:** Reference: Start Run Process Plan: Approvals: Date: **Tooling:** Date: Stop QC: **SPC (Y/N):** Date: Date: Sequence ID/ **Operation** Tool ID Tool # Plan Set Up/ Reject Reject Insp. Accept **Work Center ID** Description **Run Hours** Code Qty Qty Number Stamp QC15- Crosstube Dimensional Check 130 0.00 *130*

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										DQA:	Date:	• _
NCR: Y	es / No				WORK ORDER NON-	COI	NFOR	MANCE / UP	DATE	04 (1	Data	,
		-								QA Closed:	Date:	•
Work Orde	r·				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	•
WOIN OTHE	'` <u></u>				Rework	7		Skid-tube	Crosstube]	Water Jet	Engineering
Part N	Ο.				Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	1		noforming	Finishing	4	re/Packaging	Other
NCR N	o	_			Work Order Update]		Large Fab	Composite]	Supplier	
		T	T	Danasi		لــــ	14.1 - I		**	C: 0	r	I
Root	Date	Ston	Ott	ı	ption of work order update or Non-conformance	1	Initial	1	tion	Sign &	Verification	OC Increases
Cause	Date	Step	Qty	· ·	or Non-comormance	101	ief Eng	Desc	ription	Date	verification	QC Inspector
Doc/Data Equip/Tooling	\dashv									•		
Operator	- ∤ ·											
Material	-											
Setup												
Other	-											
Process	7											
Supplier												
Training											•	
Unapproved						1					-	
		•			F	AUL	T CATE	GORY		· · · · · · · · · · · · · · · · · · ·		* · · · · · · · · · · · · · · · · · · ·
Landin	g Gear				General		_			_		_
	Bending				Bend		Grain			Ovalized		Pressure/Forced
14	Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	ire		Over/Under	tolerance	Temperature/Cure

Inspection Incomplete

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Instructions Incomplete/Unclear

Part Incorrect

Part Moved

Part Lost/Missing

Positioned Wrong

Power Loss/Surge

Weld

Other

Wrong Stock Pulled

Broken/Damaged

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Burrs

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Cracks

Cuffs

Heat Treat

Crushed/Crimped.

Inspection Strip in Tube

Torque Waves in Extrusion

August-27-12 10:25:43 AM

Required Date: 31/05/2012

Item ID:

D407-667-205

Accept

N900040100

Setup Start

Item Name: **Start Date:**

Revision ID:

Crosstube Aft 14/05/2012

Start Qty: 1.00 Req'd Qty: 1:00

Cust Item ID:

Customer:

Tool ID

Reference:

Approvals:

Process Plan:

Date: ____

Tooling:

SPC (Y/N):

Date:

Date:

Tool#

Plan

Code

Reject

Otv

Run

Accept

Qty

Insp.

Stop

Start

Number Stamp

Reject

Sequence ID/ **Work Center ID**

140

140 Crosstubes

Crosstubes

Operation Description

Date:

Set Up/ **Run Hours**

0.00

Crosstubes

Memo

0.00

******* ENSURE PROPER JIG POSITIONING ********

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245

6-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Note: Aft side has 3x top holes.

7-Drill Fwd rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Drill only the top (3) holes.

8-C'sink holes as per Dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.

9- Scribe tube to identify on the inner chamfer in the cuff D# and B#

MO

		•									DQA:	Date	· .
NCR: Y	/es	/ No				WORK ORDER NON-C	O	NFORM	MANCE / UP	DATE			, ,
											QA Closed:	Date	
Work Orde	٦r.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	- . No.					Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	ľ	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved						·	A111	T CATE	GORY				
Landii	ng G	ear				General	HOL	I CAIL	GONT				
		Bending Centre No Cracks Crushed/O Cuffs Heat Trea Inspection Ripples in Torque W	Crimped. t n Strip in Bend	Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	on Incomplete ions Incomplete/ nance led		Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	ct ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

84487 Page 4 August-27-12 10:25:43 AM Item ID: D407-667-205 Accept *N900040100* Setup Start **Revision ID:** Crosstube Aft Item Name: **Start Date:** 14/05/2012 Start Qty: 1.00 **Cust Item ID: Required Date:** 31/05/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Approvals: **Process Plan:** Date: **Tooling:** Date: Stop Date: _____ SPC (Y/N): OC: Date: Sequence ID/ Operation Set Up/ **Tool ID** Tool # Plan Accept Reject Reject Insp. **Work Center ID Description Run Hours** Code Qty Qty Number Stamp 12/10/30 10-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245 150 QC5- Inspect part completeness to step on W/O 0.00 *150* QC Memo Quality Control *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

160

160 HandFXtube

Hand Finishing Crosstubes

Memo

0.00

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- CLEAN CROSSTUBE WITH WASH'N WIPE

NCR: Y	es / No				WORK ORDER NON-	CONFOR	RMANCE / UP	DATE			
	•								QA Closed:	Date:	•
Work Orde	r:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
		· · · · · · · · · · · · · · · · · · ·			Rework	1	Skid-tube	Crosstube]	Water Jet	Engineering
Part N	o				Scrap	1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	The	rmoforming	Finishing	Rec/Sto	re/Packaging	Other
NCR N	0				Work Order Update	<u> </u>	Large Fab	Composite	j	Supplier	
Root				Descri	ption of work order update	Initial	Ad	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief En	g Desc	cription	Date	Verification	QC Inspector
Doc/Data											
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Operator											
Material											
Setup											
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Process		ļ									
Supplier											
Training	_									3	
Unapproved											
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Landin	g Gear			_	General			_	-		-
	Bending				Bend	Grain	l		Ovalized		Pressure/Forced
1	Centre No	ot Concer	ntric to (D/S	BOM/Route	Hard	vare		Over/Under	tolerance	Temperature/Cure
,	Cracks				Broken/Damaged	Inspe	ction Incomplete		Part Incorre	ct	Weld
	Crushed/	Crimped.		_	Burrs	Instru	ctions Incomplete,	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination	Main	tenance		Part Moved		
	Heat Trea	it			Countersink	Misla	beled		Positioned \	Vrong	-
	Inspectio	n Strip in	Tube		Cut Too Short	Misre	ad		Power Loss/	Surge	Other
	Ripples in	Bend			Drill Holes	Offse	t				
	Torque W	aves in E	xtrusion	۱ [Drawing	Out o	f Calibration				
Γ	Turning S	enuence			Finish		f Saguence	•			

DQA:

Date:

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 10:25:43 AM

Item ID:

D407-667-205

Accept

N900040100

Setup Start

Item Name: **Start Date:**

Revision ID:

14/05/2012

Crosstube Aft

Start Oty: 1.00

Cust Item ID:

Required Date: 31/05/2012

Req'd Qty: 1.00

Customer:

* Reference:

Approvals:

Process Plan:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Stop

Sequence ID/ **Work Center ID**

Outsource process - NDT

Operation Description

Packaging

Set Up/ **Run Hours** Tool ID

Tool# Plan

Accept Qty Code

Reject Oty

Run

Reject Insp.

Number Stamp

180

180 Outsource2

Memo

0.00

0.00

Outsource process - NDT per QSI038 4.1

Date: ____

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Liquid Penetrant Inspection as per QSI 038O Issue P/O/8302-LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

190

190

Packaging

Memo

0.00

0.00

Packaging *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Ensure copy of NDT results attached to work order.

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

NCR: Y	es / No				WORK ORDER NON-O	CON	NFORM	MANCE / UP[DATE			,
								•		QA Closed:	Date	· .
Work Orde	er:				DISPOSITION					EPARTMENT	_	
Part N					Rework Scrap Use-as-is Work Order Update		f Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	ption of work order update		nitial	Act	ion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	iption	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved											·	
					 	AUL	T CATE	GORY				
Landi	Cracks Crushed Cuffs Heat Tr Inspect Ripples Torque	Not Conce I/Crimped eat on Strip in in Bend Waves in I	Tube Extrusion		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset Out of 0	ion Incomplete tions Incomplete/Usenance seled d	Unclear	Ovalized Over/Under Part Incorre Part Lost/IV Part Moved Positioned Power Loss	ect lissing Wrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
		Sequence		<u> </u>	Finish		1	Sequence				

DQA:

Date:

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work	Order	ID	84487
VVOFIX	Oluvi	11/	OTTO/

.QC

Quality Control

84487

Page 6 August-27-12 10:25:43 AM Item ID: D407-667-205 Accept *N900040100* Setup Start **Revision ID:** Crosstube Aft Item Name: **Start Date:** 14/05/2012 Start Qty: 1.00 **Cust Item ID: Required Date:** 31/05/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Start **Approvals:** Process Plan: _____ Date: ____ **Tooling:** Date: Stop _____ Date: SPC (Y/N): Date: Sequence ID/ Operation Tool ID Tool # Plan Reject Reject Set Up/ Accept Insp. **Work Center ID** Description Qty Number Stamp **Run Hours** Code Qty 204 0.00 *204* HandFXtube 0.00 Memo Hand Finishing Crosstubes *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION 206 QC7-Inspect Chemical Conversion Coat 0.00 *206*

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Memo

											DQA:	Date:	••
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFORM	MANCE / UP	DATE	OA Classide	Data	,
									····		QA Closed:	Date:	•
Work Ord	er.					DISPOSITION				AGAINST DE	PARTMENT,	PROCESS	
Part f	_			_		Rework Scrap			Skid-tube Machining	Crosstube Small Fab	Pro	Water Jetd. Eng. Coor.	Engineering Quality
NCR I	No					Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Stor	re/Packaging Supplier	Other
Root	T				Descri	ption of work order update		nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
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							AUL	T CATE	GORY				
Landi						General	Γ	la .		_	۱ ، ،		Ja (5)
	-	Bending			0/6	Bend BOAA/Bounds	-	Grain			Ovalized	* -1	Pressure/Forced Temperature/Cure
	\vdash	Centre No Cracks	ot Concei	ntric to	U/S	BOM/Route Broken/Damaged	\vdash	Hardwa	•	<u> </u>	Over/Under Part Incorre		Weld
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	Н	rippies ili Torque W		Evtrucia	<u>,</u>	Drawing	\vdash	1	Calibration				.
		VV	COVED III D			1421 G VV 1118		TOUL OIL	.comprantelli				

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

220

QC14- Inspect Spray Paint

0.00

22U

Memo

Start Time: 6:15 Finish Time: 7:00

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

NCR: Y	es / No				WORK ORDER NON-O	CONFO	DRMANCE /	UPDATE				,
										QA Closed:	Date	•
Work Orde	ır:				DISPOSITION			AGAIN	NST DE	PARTMENT	PROCESS	
			*****		Rework] [Skid-tube	Crosstu	ıbe		Water Jet	Engineering
Part N	lo				Scrap		Machining	Small F	Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	J T⊦	nermoforming	Finish	~ 	Rec/Stor	e/Packaging	Other
NCR N	lo				Work Order Update	J	Large Fab	Compos	site		Supplier	
Root				Descri	ption of work order update	Initi	al	Action		Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief	Eng . [Description		Date	Verification	QC Inspector
Doc/Data												
quip/Tooling				}								
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Process				:								
Supplier	_	1				i						
Training		l	}						٠.			
Unapproved		<u> </u>	<u> </u>	<u> </u>			.=====					
						AULIC	ATEGORY					
Landir	ng Gear				General	Gra			_	Ovalized	_	Pressure/Forced
}	Bending			0/5	Bend BOAA/Bouts	\vdash				Ovalized Over/Under	talaranaa	Temperature/Cure
}	Centre No	ot Conce	ntric to	^{0/5} -	BOM/Route	\vdash	dware	.+.		Part Incorre	 	Weld
ł	Cracks Crushed/	Crimmod		-	Broken/Damaged Burrs	-	pection Incomple tructions Incompl		-	Part Lost/Mi		Wrong Stock Pulled
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ŀ	Heat Trea	. +		 	Countersink	\vdash	labeled		-	Positioned V	Mrong	
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ŀ	Ripples in		iube	-	Drill Holes	Hoff	•		L	I OMEL FOSS	Juige	Totalei
}	Torque W		Evtrusia	<u>,</u>	Drawing	\vdash	t of Calibration	,				
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Date:

DQA:

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Wave/Twist in Tube

Quality Control

Page 8 August-27-12 10:25:43 AM Item ID: D407-667-205 Accept *N900040100* Setup Start **Revision ID:** Item Name: Crosstube Aft . Start Date: 14/05/2012 Start Oty: 1.00 **Cust Item ID: Required Date:** 31/05/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Process Plan: Date: **Approvals:** Tooling: Date: Stop **Date:** _____ SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Reject Accept Reject Insp. Work Center ID Description Code Qty Qty **Run Hours** Number Stamp 230 0.00 1 9 9 Ag 12-11-8 Crosstubes *230* Crosstubes 0.00 Memo Crosstubes 1- Install chafing shield as per DEO D407-667-245. Top holes should be facing A/R Proseal 890 Batch: [33103] EXP: 03/13 2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe 3-Install support with Scotch-Weld DP460 and install clamps as per DEO Dwg D407-667-245 using installaition jig DT9025. Torque clampsas per dwg Scotch-Weld DP460 Batch: \22900 EXP: 1-9-13 4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron 240 QC5- Inspect part completeness to step on W/O Memo

Work Order: Part Norder	NCR: \	/es	/ No				WORK ORDER NON-		NFORM	MANCE / UPI	DATE			,
Part No. Skid-tube Skid-			,							•		QA Closed:	Date:	
Rework Scrap Use as is Use Use Islanding U	Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
NCR No.		•			······		1 ⊢]	1		 	Dro	├ ─-	_
Root Cause Date Step Qty Or Non-conformance Chief Eng Description Date Verification OC Inspector Doc/Data Equip/Fooling Operator Material Setup Unapproved Description Date Verification OC Inspector FAULT CATEGORY Landing Gear Centre Not Concentric to O/S Centre Not Concentric to O/S Corushed/Crimped Bornal Bornal Bornal Corushed/Crimped Burrs Burrs Contamination Heat Treat Contersink Burrs Contresink Mislabeled Positioned Mislabeled Positioned Mislabeled Positioned Power Loss/Surge Other	Parti	NO					` 	-		~ —				
Cause Date Step Qty or Non-conformance Chief Eng Description Date Verification QC Inspector Doc/Data EquipyTooling Operator Operator Ope	NCR N	No.		·			<u> </u>		THEIR	~ —		incer see	· · · · · · · · · · · · · · · · · · ·	
Doc/Data Equip/Tooling Operator Oper	Root					Descri	ption of work order update		Initial	Act	ion	Sign &		
Centre Not Concentric to O/S BoM/Route Hardware Over/Under tolerance Temperature/Cure Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Weld Containation Containation Heat Treat Countersink Maintenance Ripples in Bend Diffl Holes Offset	Cause		Date	Step	Qty	(or Non-conformance	Ch	nief Eng	Descr	ription	Date	Verification	QC Inspector
Operator Material Setup Other Process Supplier Training Unapproved	Doc/Data												1	
Material Setup Other Oth	Equip/Tooling						•							
Setup Other	Operator	\Box												
Other Process Supplier Training Unapproved U	Material													
Process Supplier Training Unapproved Unappro	Setup			<u> </u>				ł						
Supplier Training Unapproved FAULT CATEGORY Landing Gear General Bending Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Crushed/Crimped Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved Part Moved Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset	1	Ш												
Training Unapproved	!											Ì		
Landing Gear General Bending Bend Grain Ovalized Pressure/Forced Temperature/Cure Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved Part Moved Part Moved Positioned Wrong Countersink Mislabeled Positioned Wrong Other Cother	1	Ш												
FAULT CATEGORY Landing Gear Bending Bending Bend Centre Not Concentric to O/S BOM/Route Broken/Damaged Cracks Broken/Damaged Burrs		Ш												
Landing Gear Bending Bend Centre Not Concentric to O/S Broken/Damaged Cracks Broken/Damaged Burrs Cuffs Contamination Heat Treat Heat Treat Inspection Strip in Tube Ripples in Bend Bend Grain Ovalized Pressure/Forced Temperature/Cure Hardware Inspection Incomplete Inspection Incomplete Instructions Incomplete/Unclear Maintenance Maintenance Misread Over/Under tolerance Part Incorrect Weld Part Lost/Missing Wrong Stock Pulled Part Moved Positioned Wrong Power Loss/Surge Other Other	Unapproved		L	1	<u>]</u>				T 64TE	CODY		<u> </u>	1	
Bending Bend Grain Ovalized Pressure/Forced Over/Under tolerance Temperature/Cure Under tolerance Cracks Broken/Damaged Inspection Incomplete Instructions Incomplete Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved Part Moved Part Moved Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Poffset							 	AUI	LICATE	GURY				
Centre Not Concentric to O/S BOM/Route Inspection Incomplete Crushed/Crimped Contamination Heat Treat Inspection Strip in Tube Cut Too Short Drill Holes BOM/Route Hardware Inspection Incomplete Ins	Landi		1				¬		Crain			Ovalized		Drossuro/Forcod
Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Crushed/Crimped Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved Heat Treat Countersink Mislabeled Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset				at Canca	ntric to	0/5	-	\vdash	-i	aro.		4	tolerance	
Crushed/Crimped Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved Heat Treat Countersink Mislabeled Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset		\vdash	l	or Conce	intric to	^{5/3} -	-	-	-1		<u> </u>	-{	-	-
Cuffs Contamination Maintenance Part Moved Heat Treat Countersink Mislabeled Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset		-	l	Crimned		-	-	-	4	•	Inclear	-i	<u> </u>	
Heat Treat Countersink Mislabeled Positioned Wrong Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset		-	l .	cimped			-{	\vdash	4	•	- Incircui	4		
Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other Ripples in Bend Drill Holes Offset		\vdash	ł	at .		-	⊣	\vdash	4		-	4		
Ripples in Bend Drill Holes Offset		H	l		Tuhe	-	-	\vdash	4	**		4		Other
					,	-	-{		-1	-	<u> </u>	1 2233/		_L
Torque Waves in Extrusion Drawing Out of Calibration			1		Extrusio	, 	-1		4	Calibration				
Turning Sequence Finish Out of Sequence			· ·			-			-1					

Date: _

DQA:

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 10:25:43 AM

Required Date: 31/05/2012

Item ID:

D407-667-205

Accept

N900040100

Setup Start

Revision ID:

Item Name: **Start Date:**

Crosstube Aft

14/05/2012

Start Qty: 1.00 Req'd Oty: 1.00

Date:

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID 250

Operation Description Pick Kit

Set Up/ **Run Hours** 0.00

Tool ID

Tool # Plan Code

Accept Qty

Reject Reject Qty Number

Insp. Stamp

250

Packaging Packaging

Memo

0.00

260

260

QC4-100% Inspect kits for completeness

0.00

0.00

12111

Quality Control

270

Packaging

Memo

Memo

Identify and in kanban rack Location: 53

0.00

0.00

Rava

12 Stulies

270

Packaging

Packaging

NCR: Y	es / No				WORK ORDER NON-C	CONFO	ORMANCE / UP	DATE	QA Closed:	Date:	•
Work Orde	r·				DISPOSITION		<u> </u>	AGAINST DE			
Part N	0.				Rework Scrap Use-as-is Work Order Update] Th	Skid-tube Machining nermoforming Large Fab	Crosstube Small Fab Finishing Composite	┥	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root Cause	Date	Step	Qty		tion of work order update or Non-conformance	Initia Chief		ction cription	Sign & Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved											
				· · · ·		AULIC	ATEGORY				
Landin	Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspectio Ripples in	Crimped at n Strip in n Bend	Tube		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing	Ins Ins Ma Mis Off	ain rdware pection Incomplete tructions Incomplete, aintenance slabeled sread fset t of Calibration	/Unclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	ct ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other

Out of Sequence

Outside Dimensions

DQA:

Date:

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Finish

August-27-12 10:25:43 AM

Required Date: 31/05/2012

D407-667-205 Item ID:

Accept

N900040100

Setup Start

Revision ID:

Item Name: **Start Date:**

Crosstube Aft

Start Qty: 1.00 14/05/2012

Date:

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:_____

Tooling:

SPC (Y/N):

Date:

Date:

Start Run

Stop

Sequence ID/ Work Center ID Operation Description

Req'd Qty: 1.00

Set Up/ **Run Hours** Tool ID

Tool # Plan Qty Code

Accept Reject Qty

Reject Number

Insp. Stamp

280

280

Memo

QC21- Final Inspection - Work Order Release

0.00

0.00

Quality Control

NCR:	Yes	/ No				WORK ORDER NON-	COr	NFORI	MANCE / UPI	DATE	QA Closed:	Date:	•
Work Ord	or.					DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part I	No.					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		nitial	Act	ion	Sign &		
Cause		Date	Step	Qty	•	or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved						·							
						F	AUI	T CATE	GORY				
Landi	ng (Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspectio Ripples in	Crimped at n Strip in i Bend	Tube		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	on Incomplete ions Incomplete/ nance iled	Unclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
		Turning S	equence			Finish		Out of	Sequence				

DQA:

Date:

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Wave/Twist in Tube

Picklist Print

August-27-12 10:25:47 AM

Work Order ID: 84487

D407-667-205

Parent Item Name: Crosstube Aft

84487

D407-667-205

Start Date: 14/05/2012

Required Date: 31/05/2012

Start Qty: 1.00

Required Qty: 1.00

:Comments:

Parent Item:

IPP Rev:C 05.09.02 Add holes for compatibility with Bell SkidtubesKJ/JLM

IPP Rev:D Added Magnobond, Rubber Cushion & Clamps

07-02-19

JLM

****CHANGE TO CHG 005 - IF USING D2894-1 B35578 OR GREATER****

IPP Rev:E 08-05-22 add comment in seq. 6 and QC15 and QC5 DD verified

by:EC

IPP Rev:F 08-06-12 add comment in seq. 24 DD verified by:EC

IPP Rev:G 08-08-19 revE as per dwg DD verified by:EC

EC verified by:DD IPP Rev:I IPP Rev H 09.01.06 ECN 08-562 10.04.07 revise route seq. in bom DD verified by:JLM IPP Rev J 11.04.26

removed abrasion strip ecn 11-551 EC verified

by:DD

IPP REV:K

11.10.03 DEO D407-667-245-F-2 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D407-667-205TRN *D407-667 Crosstube Turning Detail	7-205TF	Manufactured	No			110	Each	1.0000	**	340	12	-10-	-25
AN960JD516	NAS1149D0563J	Purchased	No	<u>Location</u> LG	86417	<u>Loc</u> •		Loc Code 2.0000	7 722 -				
AN960.IF)516	•							**	123355	<u> </u>	12/1	1/13
				Location		Loc	<u>Oty</u>	Loc Code				1	
1 .				ST338	1069059		2 2		_				

NCR:	es /	No				WORK ORDER NON-C	ON	IFOR1	AANCE / UPE	DATE			_		•
												QA Closed:	Da	ite:	,
Work Orde	er:					DISPOSITION				AGAINST	DEI	PARTMENT/			-
Part N	-					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fat Finishing Composite			Water Jet d. Eng. Coor e/Packaging Supplie		Engineering Quality Other
Root					Descri	ption of work order update	11	nitial	Act	ion		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	iption		Date	Verification	on	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved							A.111	T CATE	GORY						
l a mali	6						AUL	ICATE	GURT						·· · · · · · · · · · · · · · · · · · ·
Landi	Ce Cr Cr Cu He Ins	nding ntre No acks ushed/0 ffs eat Trea spection uples in rque W	Strip in	Tube Extrusio		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish		Instruct Mainte Mislabe Misread Offset Out of 0	on Incomplete ions Incomplete/U enance eled	Unclear		Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct issing Vrong		Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other

DQA:

Date:

Wave/Twist in Tube

August-27-12 10:25:47 AM

· Work Order ID: 84487

Parent Item:

D2873-043

D407-667-205

Parent Item Name: Crosstube Aft

84487

D407-667-205

Start Date: 14/05/2012

Required Date: 31/05/2012

Start Qty: 1.00

Required Oty: 1.00

**

**

D2873-043

Nut Plate Assembly

Manufactured

Location

LG052

230

230

Each

Loc Qty

2

6

40

Each

48.0000

Loc Code

1.0000

Loc Code

2

(2)

(2)

Ad 12-11-8

D2873-045

Nut Plate Assembly

Manufactured

Manufactured

No

72644

82949

89253

LG052 82947

Location

Location

LG052

LG055

230

Loc Qty

Each

8.0000 **

Loc Code

8-11-CI HA

A 12-11-8

D2894-1

2:750 Support

D3190-1 *D3190-1*

D2894-1

Chafing Shield

Manufactured

No

85797

5 230 Each

Loc Qty

3

33.0000

**

Location Loc Qty LG053 23

75947

10 10

23

Loc_Code

											DQA:	Date:	• • •
NCR:	Yes	/ No	•			WORK ORDER NON-	col	NFOR î N	MANCE / UPD			5 .	,
								•			QA Closed:	Date:	•
Work Orde	or.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIG	- ''					Rework	7		Skid-tube	Crosstube		Water Jet	Engineering
Part I	No.					Scrap	1	l.	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
	-					Use-as-is	1	Therm	oforming	Finishing	Rec/Sto	re/Packaging	Other
NCR I	۱o					Work Order Update			Large Fab	Composite		Supplier	
Root	T				Descri	ption of work order update		Initial	Actio	on	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descrip	otion	Date	Verification	QC Inspector
Doc/Data								ļ					
Equip/Tooling	Ш												
Operator	Ш												
Material	Ш						ŀ						
Setup	Ш											<u> </u>	
Other	Ш												
Process	Ц												
Supplier	Н		ł			•							
Training	Ш												
Unapproved			<u> </u>				<u> </u>						1
							AUI	LT CATE	JORY				
Landi						General		10		_	Ovalized		Pressure/Forced
	\vdash	Bending			0/6	Bend	\vdash	Grain		<u> </u>	4	talaransa	Temperature/Cure
	$\boldsymbol{\vdash}$	Centre No	ot Conce	ntric to	^{0/5} -	BOM/Route	-	Hardwa		-	Over/Under Part Incorre	· ·	Weld
	Н	Cracks	C			Broken/Damaged	\vdash	4	on Incomplete	- sloar	Part Lost/M		Wrong Stock Pulled
	-	Crushed/	crimpea.		-	Burrs	\vdash	Mainte	ions Incomplete/Ur		Part Lost/Mi		J WHO HIS SLOCK Fulled
		Cuffs			-	Countarink	\vdash	Mislabe		-	Positioned \		
	Н	Heat Trea		Tubo	-	Countersink Cut Too Short	\vdash	Misread		-	Positioned (Other
	-	Inspectio Ripples in	•	eau	-	Drill Holes	\vdash	Offset	ı	<u> </u>	Jrower coss	Suige	Tottlei
1		ผากกเลว [[rpenu			וחווו עמובז	- 1	10113EL					

Out of Calibration
Out of Sequence

Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

August-27-12 10:25:47 AM

· Work Order ID: 84487 *84487* D407-667-205 *D407-667-205* Parent Item: Parent Item Name: Crosstube Aft **Start Date: 14/05/2012 Required Date:** 31/05/2012 Start Qty: 1.00 Required Qty: 1.00 D3595-063-450 Manufactured 230 Each 165.0895 2 Al 12-11-8 *D3595-063-450* ** 90968 **(2)** Location Loc Code Loc Qty LG 0.28 82511 0.28 LG051 154.7 80161 1.7 84715 3 87478 130 87958 20 MAT052 10.109474 67353 2 68893 6 70113 0.56 71354 0.2 74113 0.349474 75597 MS20601-AD4W8 Purchased No 230 Each 190.0000 14 *MS20601-AD4W8* ** 12-11-8 Location Loc Qty Loc Code 311 45 122452 45 LG051 33

August-27-12 10:25:47 AM

Shop Packet Print

33

101

100

11

11

121017

121827

121255

ST314

ST322

Page 3

NCR:	Yes	/ No				WORK ORDER NON-	100	NFORM	MANCE / UPDATE				•
											QA Closed:	Date	e:
Work Orde	ar.					DISPOSITION			AG	AINST DE	PARTMENT	PROCESS	
Part N	- . No.	٠,	. †1			Rework Scrap Use-as-is Work Order Update		t Therm	Machining Sma	sstube all Fab ishing posite	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root	<u> </u>		1	T T	Descri	ption of work order update		Initial	Action		Sign &		
Cause		Date	Step	Qty		or Non-conformance		nief Eng	Description		Date	Verification	QC Inspector
Doc/Data		Date	Step	Quy		or real comornance			Description.				- Consequence
Equip/Tooling													
Operator	H												
Material													
Setup	П												
Other	П												
Process													
Supplier													
Training													
Unapproved													
						F	AUI	LT CATE	GORY			· · · · · · · · · · · · · · · · · · ·	
Landi	ng G	Sear				General		-			-	-	
		Bending				Bend		Grain		<u> </u>	Ovalized		Pressure/Forced
		Centre No	ot Conce	ntric to (D/S	BOM/Route		Hardwa			Over/Under	F	Temperature/Cure
		Cracks				Broken/Damaged	_	Inspect	ion Incomplete	<u> </u>	Part Incorre	ct	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/Unclear		Part Lost/M	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte		<u> </u>	Part Moved		
		Heat Trea				Countersink		Mislabe	eled		Positioned \	· ·	
		Inspectio		Tube		Cut Too Short	_	Misread	t	L	Power Loss/	'Surge	Other
	_	Ripples in				Drill Holes		Offset					
		Torque W	Vaves in E	Extrusion	ı	Drawing	1	Out of	Calibration				

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

August-27-12 10:25:47 AM

· Work Order ID: 84487

Parent Item:

MS21920-22

D407-667-205

Parent Item Name: Crosstube Aft

84487

D407-667-205

Start Date: 14/05/2012

Required Date: 31/05/2012

Start Qty: 1.00

Required Qty: 1.00

Clamp(per MIL-DTL-8783C)

Purchased

Purchased

No

No

122518

Each

Each

46

74.0000

72.0000

**

12-11-8

Af 12-11-8

122838 Location Loc Code Loc Oty LG 119545 LG050 73 116207 117506 118186 120631 7 122518 50

230

MS21920-25

Clamp(per MIL-DTL-8783C)

122838

120475 120920

122204

Loc Qty Loc Code Location LG050 72 2 116264 117998 118142 119339 119746

230

**

0

2

August-27-12 10:25:47 AM

Shop Packet Print

Page 4

NCR:	Ves.	/ No				WORK ORDER NON-O	O	VFORM	MANCE / UPI	DATE			
WCIV.		, 110									QA Closed:	Date:	
Work Ord	er:					DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part !	•					Rework Scrap			Skid-tube Machining	Crosstube Small Fab	Pro	Water Jet d. Eng. Coor.	Engineering Quality
NCR I	•					Use-as-is Work Order Update		Thern	noforming Large Fab	Finishing Composite	Rec/Stor	re/Packaging Supplier	Other
Root					Descri	ption of work order update	1	nitial	1	ion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling	Ш												
Operator	Ш												
Material	Н												
Setup	Н												
Other	Ш											·	
Process	Н												
Supplier	H												
Training	\vdash												
Unapproved		l	<u> </u>	l		· · · · · · · · · · · · · · · · · · ·		T CATE	L				
Landi	nø (·	General		- CAIL	<u> </u>				
Land	_	Bending				Bend		Grain			Ovalized		Pressure/Forced
	-	Centre No	ot Concei	ntric to	o/s	BOM/Route		Hardwa	are		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged	T	Inspect	ion Incomplete		Part Incorre	ct	Weld
		Crushed/	Crimped.			Burrs		4 `	tions Incomplete/I	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	-	Cuffs	,			Contamination		Mainte	enance		Part Moved		<u> </u>
		Heat Trea	at			Countersink		Mislabe	eled		Positioned V	V rong	
		Inspectio	n Strip in	Tube		Cut Too Short		Misrea	d		Power Loss/	'Surge	Other
	-	Ripples in				Drill Holes		Offset		_			
		Torque W	aves in E	xtrusio	n $lacksquare$	Drawing		Out of	Calibration				
		Turning S	equence			Finish		Out of	Sequence				

DQA:

Date:

Wave/Twist in Tube

. August-27-12 10:25:47 AM

·Work Order ID: 84487 *84487* Parent Item: *D407-667-205* D407-667-205 Parent Item Name: Crosstube Aft **Required Date:** 31/05/2012 **Start Date:** 14/05/2012 Start Qty: 1.00 Required Qty: 1.00 AN5-10A Purchased No 250 Each 397.0000 10 *AN5-10A* 123533 98 ** Location Loc Qty Loc Code ST337 297 118191 80 121243 100 122151 117 ST362 100 122800 100 AN5-32A 250 Purchased No Each 301.0000 *AN5-32A* ** 122993 gB Location Loc Qty Loc Code ST337 100 122416 50 122800 50 ST339 101 120423 5 122151 96 ST340 100 121541 100 AN5-34A Purchased No 250 Each 90.0000 *AN5-34A* ** Location Loc Qty Loc Code 339 25 121181 25 ST337 50 122416 122416 50 ST339 15

15

120422

NCR: Y	es / No				WORK ORDER NON-O	CONF	ORN	MANCE / UPI	DATE	QA Closed:	Da	to
								<u></u>		QA Closea:	Ua	te.
Work Orde	or.				DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Work Orac					Rework	7 		Skid-tube	Crosstube		Water Jet	Engineering
Part N	No.				Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	[†]		oforming	Finishing		e/Packaging	Other
NCR N	No				Work Order Update			Large Fab	Composite		Supplier	
										·		
Root					ption of work order update	Initia	1		tion	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief	Eng	Descr	ription	Date	Verificatio	n QC Inspector
Doc/Data		1										
Equip/Tooling												
Operator							•			 		
Material			-				Ì					
Setup												
Other												
Process												
Supplier]									
Training												
Unapproved		<u> </u>								<u> </u>		
				·		AULT C	ATE	GORY		·		
Landi	ng Gear			_	General		_			1		
	Bending				Bend	Gra			<u> </u>	Ovalized		Pressure/Forced
	Centre N	ot Conce	ntric to C	D/S	BOM/Route	-	rdwa		<u> </u>	Over/Under		Temperature/Cure
	Cracks			<u> </u>	Broken/Damaged		•	on Incomplete		Part Incorre		Weld
	Crushed/	Crimped		_	Burrs	-		ions Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs			_	Contamination	-		nance	<u> </u>	Part Moved		
į	Heat Trea			_	Countersink		slabe			Positioned V	-	
	Inspectio	•	Tube		Cut Too Short	\mathbf{H}	sread	l	<u> </u>	Power Loss/	'Surge	Other
	Ripples ir			_	Drill Holes	-	set					
	Torque V	Vaves in E	Extrusion	י 📙	Drawing	\vdash		Calibration				
	Turning S	equence		[Finish	Out of Sequence						

Date: ___

DQA:

Wave/Twist in Tube

August-27-12 10:25:47 AM

·Work Order ID: 84487

Parent Item:

D407-667-205

Parent Item Name: Crosstube Aft

Purchased

84487

No

D407-667-205

2937

Start Date: 14/05/2012

Required Date: 31/05/2012

Start Qty: 1.00

**

1,616.000

Required Qty: 1.00

MS21042L5

MS21042L5

Location	Loc Qty	Loc Code	
300	488		
121652	488		
314	1000		
122452	1000		122452
ST300	108		•
108827	4		
116105	1		
116548	43		
119109	48		

12

Each

250

NCR: Y	es / No				WORK ORDER NON-C	CONFOR	RMANCE / UP	DATE			•
									QA Closed:	Date	: ·
Work Orde	er:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part N					Rework Scrap Use-as-is	The	Skid-tube Machining rmoforming	Crosstube Small Fab Finishing	4	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR N	10.				Work Order Update		Large Fab	Composite		Supplier	
Root				Descri	ption of work order update	Initial	Ad	ction	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief En	g Desc	ription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other			1 1								
Process				:	v.						
Supplier	<u> </u>										
Training										·	
Unapproved		1				ALUTCA	TECODY .			1	
Landi	ng Gear				General	AULT CAT	EGORT			· · · · · · · · · · · · · · · · · · ·	
Landi	Bending			Г	Bend	Grain	1		Ovalized	Γ	Pressure/Forced
	— "	ot Conce	ntric to C)/5	BOM/Route	Hard		-	Over/Under	tolerance	Temperature/Cure
	Cracks	or conce		" -	Broken/Damaged	\vdash	ction Incomplete	<u> </u>	Part Incorre	<u> </u>	Weld
	Crushed	Crimped			Burrs	—	ictions Incomplete,	/Unclear	Part Lost/M	<u> </u>	Wrong Stock Pulled
	Cuffs	Cimped			Contamination	-	itenance	,	Part Moved		_
	Heat Tre	at		<u> </u>	Countersink	\vdash	beled		Positioned \	N rong	
	Inspection		Tube		Cut Too Short	Misre			Power Loss,		Other
	Ripples in		-		Drill Holes	Offse		L	.	- L	
·		Vaves in E	Extrusion	,	Drawing	Out	f Calibration		***************************************		
i die		: Seauence				□Out a	of Sequence				

DQA:

Date:

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Wave/Twist in Tube

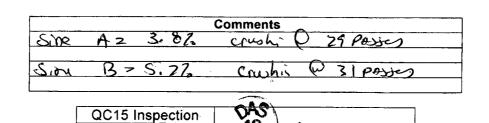
DART AEROSPACE LTD	Work Order:	& 4487 ×
Description: Crosstube High Aft (407)	Part Number:	D407-667-205
Inspection Dwg: D407-667-245 Rev: F		Page 1 of 1

Required Dimension

Nequired Difficusion	IAIIII	IVIAX	1
Height	23.39	23.65	
1/2 Span	45.79	46.05	7
Angle	54	56	7
Total Span	91.58	92.100	7.
		. 206 -	3.958
38%		5.6	26
2.033 1.884		2.083	23.560
<u> </u>	29 31		53,76
—— us. ow ———	91 7024	45.900	D
	Height 1/2 Span Angle Total Span 1-3-917 3-91, 2-033 1-884	Height 23.39 1/2 Span 45.79 Angle 54 Total Span 91.58 1-3-97 3-86 2.033 1.884	Height 23.39 23.65 1/2 Span 45.79 46.05 Angle 54 56 Total Span 91.58 92.100 1-3-7/7 3.31, 2.033 1.884 19.500 45.900 45.900

Min

Max



12/10/20

Acceptable
P12/10/26
045 12

Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	09.06.22	Dwg Rev updated	KJ	
С	11.08.22	Dimensions updated	KJ iA	
D	11.09.30	Dimensions updated	KJ CX	F

Date

Dart Ae	rospace Ltd							
W/O:			WORK ORDER (CHANGES				
DATE	STEP	PR	OCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector
	į							
Part No	:	PAR #:	Fault Category:	NCR: Ye	s No DQ	A:	Date: _	
	Resolution	n:	Disposition:	QA: N/C	Closed:		Date: _	
NCR:			WORK ORDER NON-CON	IFORMANCE (NO	CR)			

NCR:		WORK ORDER NON-CONFORMANCE (NCR)								
DATE		Description of NC		Corrective Action Section B	Verification	Ammanal	Annyoval			
	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC inspector		
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*NOTE: Date & initial all entries

item	QTY -245	PART AUGUS	
		PART NUMBER	DESCRIPTION
11	Х	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
$-\frac{4}{5}$	2	D2873-043	NUT PLATE
6	2	D2873-045	NUT PLATE
 		D2894-1	SUPPORT
8		D3190-1	CHAFING SHIELD
9	14	D3595-063-430 MS20601AD4W8	RUBBER CUSHION
10	4	MS21920-22	RIVET (OR NAS9302B-4-8)
11	2	MS21920-25	CLAMP
-			CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

Us.

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С

- 1) MATERIAL: MANUFACTURED FROM D6011-115
 - FINISHED LENGTH = 112.91±0.020
- FINISHED LENGTH # 112.91±0.020
 FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
 TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

- TOLERANCES ARE FER DART ASTRUIS UNLESS OTHERWISE MOTED.
 UNITS: INCHES UNLESS OTHERWISE NOTED.
 BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
 IDENTIFICATION: SCRIBE DART PART. NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 27.7 lbs

- 7) WEIGHT: 27.7 Ibs
 8) PART IS SYMMETRIC ABOUT CENTERLINE.
 9) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF GRASSES. MAAIMON TOBE LCATE BENDING IS 6% BASED ON O.D.

 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO
- 13) INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE
- NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS.
- ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.

 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE IAREN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
 OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
 SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
 LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF
- 16) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE
- 17) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY RETURN TO **ENGINEERING** UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE WORK ORDER NO CHY 87 MLJ

DEO ATTACHED

DDAWAI		7	DART AEROSPA	ACF I	חדו
DESIGN		0		BY	DATE
REV.	DESCRIPTION		ESCRIPTION	CP	02.05.13
Α	NEW ISSUE			CP.	03.05.21
В	ADD CHAFING SHIELD				
С	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES			PH	05.07.26
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F.F. REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION				07.02.07
E	TO CL REAS ELIMIN REFER	IND 8.53 WER GANIZED VIE JRRENT STAN ONS: CLAMPS NATE INTERFI RENCE: FAR#	мв	08.07.24	
F	REMO D2-3)	RMAT NOTES 1 CATED FLAG # VED REF. & AC	RF	08.11.06	

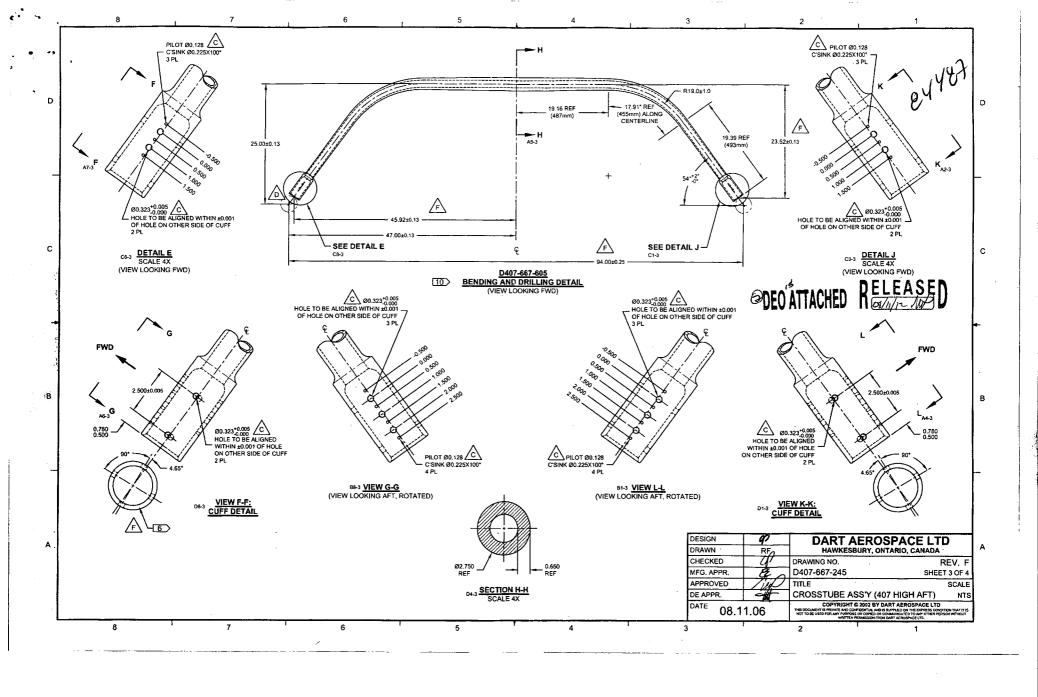
DRAWN HAWKESBURY, ONTARIO, CANADA CHECKED DRAWING NO. REV. F MFG. APPR D407-667-245 SHEET 1 OF 4 APPROVED TITLE DE APPR. CROSSTUBE ASS'Y (407 HIGH AFT) NTS DATE 08.11.06 COPYRIGHT © 2002 BY DART AEROSPACE LTD

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W/O:			W	ORK ORDER CHAN	GES			 -		, 3ª ·	
DATE	STEP	PRO	PROCEDURE CHANGE				Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
Part No	:	PAR #:	Fault Category:			NCR: Yes No DQA: Date:					
Resolut		lesolution:	Disposition:			A: N/C Closed: Date:					
NCR:	T		WORK ORD	ER NON-CONFORM	ANCE	(NCR)					
DATE	STEP	Description of NC	Corrective Action Section								
		Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Section		Approval Chief Eng	Approval QC Inspector	
											
NOTE: Da	ate & initia	l al all entries			<u>, </u>						

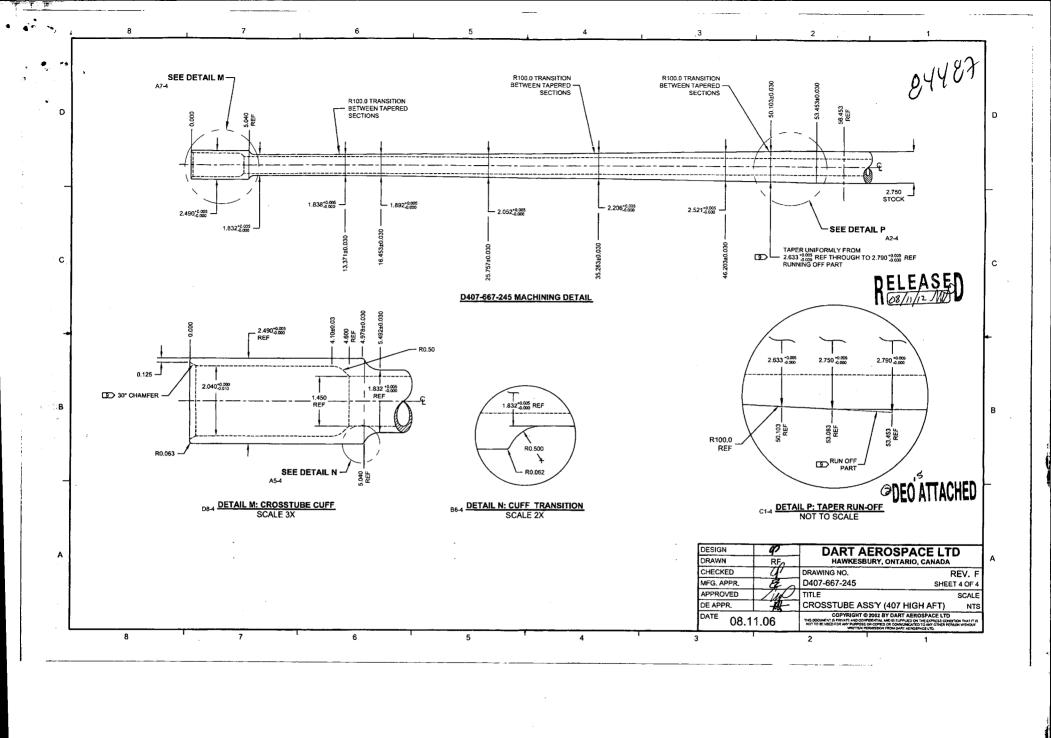
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W/O:			WORK ORDER (CHANGES					e• • .
DATE	STEP	PRO	CEDURE CHANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval 'QC Inspector
Part No	:	PAR #:	Fault Category:	NC	R: Yes	No DQ	A:	Date: _	
	Res	solution:	Disposition:	QA	: NC CI	osed:		Date: _	
NCR:			WORK ORDER NON-CON	FORMANCI	E (NCF	R)			
DATE	STEP	Description of NC	Corrective Action Des		Sign 8	Verific	cation	Approval	Approval

NCR:		WORK ORDER NON-CONFORMANCE (NCR)								
<u>. </u>		Description of NC		Corrective Action Section B	Verification	Ammunual	Annyoval			
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector		
	1									



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W/O:		WORK ORDER CHANGES	WORK ORDER CHANGES							
DATE STEP		STEP PROCEDURE CHANGE By		PROCEDURE CHANGE By Date Qty		PROCEDURE CHANGE By Date Qty Chief		Approval Chief Eng / Prod Mgr	Approval 'QC Inspector	
	1									

Part No:	PAR #:	Fault Category:	NCR: Yes No	DQA:	Date:
Resolution:		Disposition:	QA: N/C Closed]:	Date:

NCR:			WORK ORD	DER NON-CONFORMANC	E (NCR)			
		Description of NC		Corrective Action Section B		Verification	Approval Chief Eng	A
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C		Approval QC Inspector
							- -	
	<u> </u>							

 DRAWING N	0.	TITLE .		REV. F	DART AF	ROSPACE L	TD	D.E.O. N	0.	SHE	ET NO.	SCALE
D407-667-	-245	CROSSTUB	E ASSY (40	7 HIGH AFT)		ERING ORDE			67-245-F-1		T10F2	NTS
DRAWN	串		CHECKED	q	MFG. APPR.	Æ	AP	PROVED	150	DE APPR		11,0
DATE	11.04.	08	DATE	11.04.12	DATE	11.04.12	DA	TE	11.04.12	DATE	11-04-12	

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty -245	Part Number	Description
3	0	D2856-400-773	ABRASION STRIP

WAS:

	I		
3	2	D2856-400-773	ABRASION STRIP

NOTES 2 AND 15, SHEET 1 ARE AMENDED AS FOLLOWS:

15:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT

15) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3190-1 CHAFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3190-1 CHAFING SHIELDS ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

WAS:

- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
- 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.

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W/O:		WORK ORDER CH	IANGES				e 9								
DATE STEP				PROCEDURE CHANGE By Date Qty		By Date		By Date		By Date Qty		PROCEDURE CHANGE By Date Qty		Approval Chief Eng / Prod Mgr	Approval QC Inspector
					<u></u>										

Part No: PAR	R #: Fault Category:	NCR: Yes No DQA:	Date:
Resolution:	Disposition:	QA: N/C Closed:	Date:

NCR:			WORK ORD	ER NON-CONFORMANO	CE (NCR)			
		Corrective Action Section B				Verification	Approval	Approval
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	QC Inspecto
			·					

TITLE DRAWING NO. REV. F DART AEROSPACE LTD D.E.O. NO. SHEET NO. **SCALE CROSSTUBE ASSY (407 HIGH AFT)** D407-667-245 **ENGINEERING ORDER** D407-667-245-F-1 SHEET 2 OF 2 NTS DRAWN CHECKED MFG. APPR. **APPROVED** DE APPR. 11/04/12 11.04.08 11.04.11 DATE DATE DATE DATE 11.04.12 11.04.12 DATE <u>IS:</u> WAS: [16] [15] [15] [16] MS21920-22 CLAMP, 2 PL MS21920-22 CLAMP, 2 PL D3190-1 CHAFING STRIP D2856-400-773 ABRASION STRIP PROSEAL 890, A/R D3190-1 CHAFING STRIP 2 PL 2 PL 4.00 REF D407-867-605 D407-667-605 **BENT TUBE** BENT TUBE 8.02 -3.00 ---D407-667-245 ASSEMBLY DETAIL (VIEW LOOKING FORWARD) MASK AREA PRIOR TO PAINTING, REMOVE MASKING AFTER PAINT AND APPLY CLEAR COAT __ 2.00 Ç SYM COPYRIGHT @ 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLED ON THE POPELS'S CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DATA FROSPACE IT.

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W/O: WORK ORDER CHANGES							• 3.
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval* QC Inspector
				1			
							

Part No:	_PAR #:	Fault Category:	NCR: Yes No	DQA:	Date:
Resolution:		Disposition:	QA: N/C Closed	 :	Date:

NCR: WORK ORDER NON-CONFORMANCE (NCR)									
	Description of NC		Corrective Action Section B		Verification	Annroval	Approval		
STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	QC Inspector		
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	A LOCAL COMMITTEE OF THE COMMITTEE OF TH								
	STEP	STEP Description of NC Section A	Section A Initial	STEP Description of NC Initial Action Description	STEP Description of NC Initial Action Description Sign &	STEP Description of NC Initial Action Description Sign & Section C	STEP Description of NC Initial Action Description Sign & Vernication Approval		

DRAWING	NO. T	ITLE		REV. F	DART AE	ROSPACE LTD	D.E.O. NO.		SHE	ET NO.	SCALE
D407-66	7-245 C	CROSSTUB	E ASS'Y (4	07 HIGH AFT)	ENGINE	ERING ORDER	D407-667-2	245-天-2	SHEE	T10F#	NTS
DRAWN	P		CHECKED	ASS	MFG. APPR.	G	APPROVED _	WP	DE APPR.	-10th	
DATE	11.09.0	7	DATE	11.09.19	DATE	11-09-19	DATE 11.0	9.19	DATE	11.09.19	7

PURPOSE:

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

CHANGE:

IS:

Item	Qty -245	Part Number	Description
12	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

WAS:

12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 17, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

WAS:

- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

841187

DELEASED 2011-09-29

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W/O:	STEP	PROC	CEDURE CHANGE	ORDER CHANGI	<u>в</u> у.	Date Qty	Approval Chief Eng /	Approva QC Inspector
		` ` ` `					Prod Mgr	
		•		T sale	(W)			
Part No		PAR #: esolution:	Fault Category: _ Disposition:		_	No DQA:	Date: _ Date: _	•
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DATE	STEP	Description of NC Section A	1,000	ctive Action Section Action Description Chief Eng	on B Sign &		Approval Chief Eng	Approval QC Inspecto
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LIQUID PENETRANT TEST REPORT

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CLIENT DATAERO)/A	<u>CE</u>	DATE	Nov. 7, 206		I 🔀 PM □
ATTENTION AND 9 - CHANT	91	ACUREN JOB NO.	188-12-	CO 571	
ADDRESS 1270 ABELDEEN	<u>37. </u>	PO/WO No.	183076		
HAWKES BUY ON		WORK LOCATION	JAME.	20	
			ASTU 1417/051-0.	SREV./DATE _	2005
PROJECT F.P.I.	an c	ROSS Te	15E8	<u> </u>	
ITEM(S) EXAMINED	7	-)			
JOB DESCRIPTION PROCEDURE NO. LT	-0002 REV./DATE	2008		REV./DATE	<u> 2008</u>
PART NO. SEE CESUL	ZS	MATERIAL ALL			mar S
SCOPE A WET PLANTESCENT !	IGG FUSI	PECTION	WAS COMPLET	ES OW :	THE
10% External Sunt	FACE				
TEST DETAILS					
	VISIBLE	WATER WASH	☐ SOLVENT RE		POST EMULSIFIED
FAMILY BRAND MAGNAFLUX	11/1/2 34111	BLACK LIGHT S/N	16459 OUTPUT > 10	000 μ W/CM ² L	AMBIENT < 2 fc
PENETRANT 2467 MINIMUM DWELL TIME PENETRANT REMOVER 100 MINIMUM DRY TIME	>10 Min.	OTHER	ABINO	GIII a con on	100.00
PENETRANT REMOVER MINIMUM DRY TIME DEVELOPER SAD SA MINIMUM DWELL TIME		LIGHT METER S/N		CAL DUE DA	
DEVELOPER TYPE NON AQUEOUS AQUEOUS	☐ DRY				200
TEST SURFACE			D. CHAT DI ACTED	CLEA	AN BARE METAL
OOK NOT CONDITION	VELDED C/ 20°F TO 10°C/50	MACHINED	☐ SHOT BLASTED ☑ 10°C/50°F TO 52°C/12		°C/125°F
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	ACCEPT REJECT				
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2 87338					
			N/171101		
Scope of Services The agreement of Acuren Group Inc. to perform services extends only to those services.	provided for in writing. Una	der no circumstances shall s	uch services extend beyond the performa	nce of the requested servi	ces. It is expressly understood
that all descriptions, comments and expressions of opinion reflect the opinions or obser	of the comparison arter and the	e owner/onerator retains co	omplete responsibility for the engineering	, manufacture, repair and	nor can they be construed as I use decisions as a result of
data or other information provided by Acuren Group Inc. In no event shall Acuren Gro	up inc. s ilability in respect o	n ine services rejerred to the			
Standard of Care In performing the services provided, Acuren Group Inc. uses the degree, care and skill of implied, is made or intended by Acuren Group Inc.	ordinarily exercised under si	milar circumstances by oth	ers performing such services in the same of	or similar locality. No ou	ner warranty, expressed or
SIGNATURES A					
			DTI	R# 巨-1c	20254
CLIENT REPRESENTATIVE V PRINT		SIGNATURE	REPORT		
TECHNICIAN (SIGNATURE):			REVIEWED BY		
NAME (PRINT): MKE IHUSZ	<u>~</u>			NAME	INITIALS
1 st TECHNICIAN	EL CGSB L	2 ^{NO} TECHNICIAN EVEL SN	Level		
CGSB LEVEL SNT LEVI		REG. NO			
0005 120.110					<u> </u>

Change Record

Part Number D407-667-265
Description 407 AFF CROSS TUBE

Page _ l of _ l

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Chg.	Date	Ву	Relevant Documents
0001	02.06.04	91	BER DR- 0206-667 REV. E
002	03.05.21	DS	PER DR-0706-667 Rev-F
		,	
003	05.09.09	KS	DR-D206-667 Rev. H (DEM COMPARISHE)
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024	07.92.14	XL	DR-D206-667 Rev. L/MDL-D206-667 Rev. E
		1	THE DOUBT OF I NOW, 12/MIDE DOUB 661 KEEN. E
005	07.11.07	角	DR-D26-667 Rev. F (D2894 Rev. C)
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